



# BHUNGROO PROJECT: Water Management Solutions to support diversified cropping systems for men and women in northern Ghana.

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## Challenge

Northern Ghana is one of the country's breadbasket regions. Unfortunately, its agricultural production is only a third of the actual production potential largely due to dependence on rainfall. The situation has been heightened by the impacts of climate change evidenced by flooding, waterlogging and prolonged drought. During the rainy season, flooding makes the farmlands inaccessible or unusable. During the dry season the farmlands become very dry. With no access to irrigation facilities, to minimize perennial food insecurity, malnutrition among children and the low household incomes, the farmers resort to cultivating the riparian buffers resulting in the pollution of rivers and streams. The World Bank has designated the region as the poorest in Ghana. The situation may worsen as crop yields and revenue from rain-fed agriculture are likely to decrease by 50% and 90%, respectively, by 2020. The solution lies in securing water for dry season agricultural production.



Manifestations of drought and floods in Northern Ghana. Photo credit: Paa Kofi Osei- Owusu

## Response

Conservation Alliance (CA) through the CGIAR's Water, Lands and Ecosystem (WLE) program is piloting the Bhungroo Irrigation Technology (BIT) as a potential water management solution for small-scale farmers. The project aims to establish the viability and potential adoption of BIT, in enabling the farmers to cultivate at least twice per year. The technology proven in India captures excess water on farmlands during floods, by injecting it into unsaturated layers of soils for use during the dry season. Three Bhungroos have been installed to establish the potential to capture water for dry season vegetable production, and the supplementary irrigation for cowpea. CA has conducted a series of surveys covering geological, hydrogeological, soils and community perception on natural resource management. These geological surveys discovered sandstone formations which are good for storing water, and again the aquifers are confined. For the purposes of sustainability, the target local communities have received skills in the operation and management of the technology

## Recommendations for Stakeholders

The Bhungroo has the potential to be one of the water management solutions for farmers in Northern Ghana. It is recommended that:

- Further studies are carried out to unearth the potential use of the technology in varying agro ecological landscapes, and thus to enhance scaling.
- Relevant information on the technology, production systems, farmer perception, riparian buffers and socio-ecological should be documented and shared for decision-making on sustainable water management in the northern Ghana region.

## Results & Emerging Outcomes

The research is utilizing complementary approaches in the design and installation of Bhungroo in the project area. As of May 2016, the project achieved the following outcomes:

- The Bhungroos is estimated to have captured and stored at least 2500 m3 of water, to support a total of 150 women and youth farmers (in the beneficiary communities) who have expressed interest to engage in dry season vegetable farming.
- The project has attracted additional donor funding, and thus five new installations are planned.



Bhungroo Irrigation Technology installed at Wiensi Community. Photo credit: Paa Kofi Osei- Owusu



Poly tank as temporary storage for water pumped from Bhungroo. Photo credit: Paa Kofi Osei-Owusu



Women and youth farmers planting maize. Photo credit: Paa Kofi Osei-Owusu

Conservation Alliance (CA) is a regional environmental organization with a vision to conserve biodiversity at the local, national and global levels. CA works with strategic partners to empower communities to lead in agricultural development, biodiversity conservation and create opportunities for economic growth and improved human wellbeing.

CA's Northern Program promotes a new approach to sustainable agricultural intensification in which a healthy functioning ecosystem is seen as a prerequisite to agricultural development, resilience of food systems and human well-being. This project is led by Conservation Alliance and funded by the Water Lands & Ecosystems (WLE) Program of the International Water Management Institute (IWMI).

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